

Compact, lightweight modular rigs offer built-in flexibility, cost savings up to 40%

SKY-HIGH COMMODITY prices may not always be a good thing for the rig market in all respects. Take the the modular rig business, for example.

“Up until oil and gas prices started to go through the ceiling, many international oil and gas operators were looking at how they could reduce their OPEX (operating expenditure) cost base,” said **George Yule**, business director for **Polaris Rig Management**, based in Oslo, Norway. But the price hike has “blinded some operators because it’s much easier now to sign a \$10 million check to refurbish a 35-year-old rig than it would’ve been if oil was \$40 a barrel.”

Polaris, a subsidiary of Norway’s **Petroleum Resource Group**, specializes in the design, construction and provision of offshore modular drilling and workover rigs. It manages the modular unit P-101 and is working to build rig P-102 and P-103, a multiservice field support unit.

FLEXIBLE AT THE CORE

Flexibility is at the heart of the modular rig concept. Whether in its mobilization or its operations, everything’s built to allow maximum flexibility in order to cut costs, Mr Yule said.

Two main features of modular units are its compact design and light weight. Compared with a typical platform rig weight of 1,500 to 1,800 tons, the P-101 weighs only 610 tons. A smaller footprint also occupies less deckspace, which can be key considerations in areas such as the North Sea, he noted. And a smaller rig would subsequently require a smaller crew – another cost saving.

Of course, it’s true that modular rigs aren’t built for the heavy work that development drilling may require. That’s why Polaris believes modular rigs are very suitable for mature fields with a limited drilling program.

“For example, in the North Sea, most of the development drilling has already been done,” Mr Yule said. “And with the

advent of technologies like slimhole drilling and measurement while drilling, you don’t need a big beast of a rig to drill through a straw.”



Polaris Rig Management’s 1,000-hp modular rig was designed so that it offers flexible layout configurations and can be mobilized either as a single lift or on a piece-small basis via a series of smaller lifts.

Due to the modular design’s “Lego” concept, rigs can be taken apart into smaller components, allowing them to be mobilized on a piece-small basis or as a single heavy-lift vessel.

“It’s easy to move these rigs from site to site. Instead of having 6 traditional platform rigs on 6 fields, an operator can achieve what they’re looking for with 1 or 2 modular units,” he explained.

This approach eliminates ongoing rig maintenance costs that can be staggering. “When the rig’s done what it needs to do downhole, it can be demobilized immediately. Many of those big platforms in the North Sea are being used to less than 70% of its capabilities, but they need to be maintained 100%. And whether you use a rig 10 weeks a year or 52 weeks a year, its integrity must be maintained.”

In these cases, modular rigs could be an alternative to investing in aging equipment that may already be at the end of their life expectancy.

Polaris estimates an operator can see cost savings of up to 40% using a modular rig, compared with a traditional derrick equipment set.

ALTERNATIVE USES

Aside from replacing traditional platform rigs, modular rigs also can be useful in development drilling programs – as a second platform rig in support of the main rig.

If you’re going after production at high rates, a modular rig can be used for lighter activities such as workovers or wire-line support to allow the main rig to focus on the revenue work without distraction.

In fact, Mr Yule said, Polaris’ P-101 has done exactly that for **Shell** in the North Sea’s Brent field. As the Brent “D” platform rig, the P-101 completed sidetracks, running casing, well

logging, coiled-tubing support, and heavy workover and well completions.

Mr Yule said that while the great majority of platform rigs are not capable of supporting the weight of a second rig – “5% can, and 5% would be interested in maximizing their resources.”

AVERSION TO CHANGE

So why aren't more operators putting modular units to work?

It's an aversion to change, Mr Yule explained. “When people ask me who our competitors are, I say it's existing platform rigs,” because it's a challenge to overcome a molded mindset and get people to give up a piece of equipment they've used for decades.

Another competitor is the traditional jackup that an operator may bring in to a platform without a rig.

“First of all, can you even find a jackup rig? The availability right now is very low,” he said. “Second, if you do find one, you're going to pay through the roof. And all we're saying is, depending on your objective, this modular concept can be very useful.”

It's true that modular rigs are designed for lighter tasks, but this doesn't have to be a negative, Mr Yule said.

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— George Yule, Polaris Rig
Management business director

“We've had some operators wanting to kick off sidetrack drilling at 12 ¼, which would be a problem for most modular rigs,” he said. “In some cases, we've gone to our clients and asked them to come down and kick off at 9 ⅝. While this may not have been their first choice, many operators are rethinking their well designs to suit available equipment, especially in a market where there's a shortage of rigs and high premium rates.”

POLARIS RIGS

Polaris' P-101, a doubles rig with a 200MT hookload that can drill up to 15,000 ft, was built in 1987 for **Conoco** in Norway. It underwent major upgrades in 1994 and 2000, Mr Yule said, and was recently modified again to allow for additional flexibility.

The company's new P-102 – which Mr Yule called “a modular version of a traditional rig that can do all the heavy stuff but still weighs less than 1,000 tons” – should be ready in late 2009.

The P-103 will be available in early 2009. “It's basically a jack-up unit good for water depths up to 85 m that has a lightweight modular rig built into it,” he said. ♠